

Nemesis MIDI Implementation

| Parameter | CC# | Range | Value | Description |
|----------------------|---------|-------|---|---|
| Factory Delay Engine | 1 | 0-23 | Selects and loads delay effect engine (with all parameters) | |
| | | | 0 | Digital |
| | | | 1 | Diffuse |
| | | | 2 | Analog |
| | | | 3 | Tape |
| | | | 4 | Noise Tape |
| | | | 5 | Degrade |
| | | | 6 | Shifter |
| | | | 7 | Helix |
| | | | 8 | Reverse |
| | | | 9 | Sweeper |
| | | | 10 | Rhythmic |
| | | | 11 | Slapback |
| | | | 12 | Resonant Analog |
| | | | 13 | Tremolo |
| | | | 14 | Sequenced Filters |
| | | | 15 | Dub |
| | | | 16 | Chorus |
| | | | 17 | Flanger |
| | | | 18 | Double Helix |
| | | | 19 | Complex Rhythmic |
| | | | 20 | Lo-Fi Retro |
| | | | 21 | Warped Record |
| | | | 22 | Compound Shifter |
| 23 | Oil Can | | | |
| Delay Time | 2 | 0-127 | Sets delay time as a ratio of maximum delay time | |
| | | | 0 | Minimum delay time |
| | | | 127 | Maximum delay time |
| Maximum Delay Time | 3 | 0-127 | Sets maximum delay time available on time knob | |
| | | | 0 | Minimum delay time allowed by the engine (~10 ms) |
| | | | 127 | 2.6 seconds |
| <i>Reserved</i> | 4 | N/A | N/A | |
| Feedback | 5 | 0-127 | Controls amount of feedback (number of repeats) | |
| | | | 0 | Zero feedback |
| | | | 127 | Maximum feedback (set by Feedback Max parameter) |
| Wet/Dry Mix | 6 | 0-127 | Sets effect (wet) level relative to dry level | |
| | | | 0 | 100% dry |
| | | | 127 | 100% wet |
| Modulation Depth | 7 | 0-127 | Controls amount of modulation or wow and flutter | |
| | | | 0 | No modulation |
| | | | 127 | Max modulation (set by engine) |

| Parameter | CC# | Range | Value | Description |
|------------------------|-----|-------|--|---|
| Modulation Rate | 8 | 0-127 | Controls modulation speed or tape wow and flutter rate | |
| | | | 0 | Tape-Style Engines: Slowest Tape Speed |
| | | | 127 | Tape-Style Engines: Fastest Tape Speed |
| | | | 0 | Other Effect Engines: 0.1 Hz |
| | | | 127 | Other Effect Engines: 10 Hz |
| Intensity (Assignable) | 9 | 0-127 | Controls multiple parameters (different for each effect engine) | |
| | | | 0 | Minimum position on intensity knob (see manual) |
| | | | 127 | Maximum position on intensity knob (see manual) |
| Output Level | 10 | 0-127 | Sets the master output volume for wet and dry signals | |
| | | | 0 | $-\infty$ dB (Output is silent) |
| | | | 52 | 0 dB |
| | | | 127 | +8 dB |
| Diffusion | 11 | 0-127 | Controls the amount of diffusion or smearing | |
| | | | 0 | No diffusion |
| | | | 127 | Max diffusion |
| Distortion | 12 | 0-127 | Sets the intensity of the distortion (character based on engine) | |
| | | | 0 | No distortion |
| | | | 127 | Max distortion |
| High Pass Filter | 13 | 0-127 | Sets cutoff frequency (Hz) of high pass filter | |
| | | | 0 | No filtering |
| | | | 16 | 120 Hz |
| | | | 32 | 170 Hz |
| | | | 48 | 250 Hz |
| | | | 64 | 360 Hz |
| | | | 80 | 515 Hz |
| | | | 96 | 740 Hz |
| | | | 112 | 1070 Hz |
| | | | 127 | 1500 Hz |
| Low Pass Filter | 14 | 0-127 | Sets cutoff frequency (Hz) of low pass filter | |
| | | | 0 | No filtering |
| | | | 16 | 11000 Hz |
| | | | 32 | 7500 Hz |
| | | | 48 | 5100 Hz |
| | | | 64 | 3500 Hz |
| | | | 80 | 2400 Hz |
| | | | 96 | 1650 Hz |
| | | | 112 | 900 Hz |
| | | | 127 | 400 Hz |

| Parameter | CC# | Range | Value | Description |
|---|-----|-------|---|--|
| Sample Rate Reduction | 15 | 0-127 | Reduces the sample rate (Hz), creating aliasing artifacts | |
| | | | 0 | No sample rate reduction |
| | | | 1 | 12000 Hz |
| | | | 16 | 8000 Hz |
| | | | 32 | 6000 Hz |
| | | | 48 | 4400 Hz |
| | | | 64 | 3200 Hz |
| | | | 80 | 2300 Hz |
| | | | 127 | 200 Hz |
| Sweep Filter Frequency | 16 | 0-127 | Sets the center frequency (Hz) of the sweep filter | |
| | | | 0 | 55 Hz |
| | | | 16 | 100 Hz |
| | | | 32 | 170 Hz |
| | | | 48 | 300 Hz |
| | | | 64 | 500 Hz |
| | | | 80 | 900 Hz |
| | | | 96 | 1600 Hz |
| | | | 127 | 4700 Hz |
| Sweep Filter Q | 17 | 0-127 | Sets the Q (resonance) of the sweep filter | |
| | | | 0 | No resonance |
| | | | 127 | Max resonance |
| Sweep Filter Depth | 18 | 0-127 | Sets the frequency range of the sweep filter | |
| | | | 0 | No sweep - fixed frequency |
| | | | 42 | From 1/2 to 2 times the center frequency |
| | | | 63 | From 1/3 to 3 times the center frequency |
| | | | 127 | From 1/8 to 8 times the center frequency |
| Sweep Filter Mix (Only applies to Tap 1) | 19 | 0-127 | Sets the mix (from 0 to 100%) of the sweep filter | |
| | | | 0 | Sweep filter disabled |
| | | | 63 | 50/50 mix |
| | | | 127 | 100% mix |
| Wow and Flutter Depth | 20 | 0-127 | Sets the depth of wow and flutter tape modulation | |
| | | | 0 | No wow or flutter |
| | | | 127 | Maximum wow and flutter |
| Wow and Flutter Rate | 21 | 0-127 | Sets rate of wow and flutter tape modulation | |
| | | | 0 | Very slow (lowest tape speed) |
| | | | 63 | "Vintage" tape speed (based on Echoplex) |
| | | | 127 | Fast tape speed |
| Wow Modulation Noise | 22 | 0-127 | Tape gets "older" as this parameter is turned up | |
| | | | 0 | "New" tape |
| | | | 20 | "Old" tape |
| | | | 40 | "Warped" tape - extremely old tape |
| | | | >50 | Turns into noise and distortion |

| Parameter | CC# | Range | Value | Description |
|------------------------|-----|-------|--|--|
| Tremolo Depth (Stereo) | 23 | 0-127 | Sets amount of tremolo (amplitude modulation) | |
| | | | 0 | No tremolo |
| | | | 63 | Max tremolo (sine LFO) |
| | | | 127 | Doubled tremolo (twice the speed, rectified sine LFO) |
| Pitch Shift Control | 24 | 0-125 | Only valid for Shifter, Reverse, Helix, and Double Helix Engines | |
| | | | (Refer to Pitch Shift Table at end of this document) | |
| Tap 1 Level | 25 | 0-127 | Output level of tap 1 (usually on Output 1) | |
| | | | 0 | Silent |
| | | | 16 | -12 dB |
| | | | 31 | -6 dB |
| | | | 45 | -3 dB |
| | | | 63 | 0 dB |
| | | | 127 | +6 dB |
| Tap 1 Pan | 26 | 0-127 | Stereo pan of tap 1 | |
| | | | 0 | 100% Left (Output 1) |
| | | | 63 | Centered (Both Outputs) |
| | | | 127 | 100% Right (Output 2) |
| Tap 2 Level | 27 | 0-127 | Output level of tap 2 (usually on Output 2) | |
| | | | 0 | Silent |
| | | | 16 | -12 dB |
| | | | 31 | -6 dB |
| | | | 45 | -3 dB |
| | | | 63 | 0 dB |
| | | | 127 | +6 dB |
| Tap 2 Pan | 28 | 0-127 | Stereo pan of tap 2 | |
| | | | 0 | 100% Left (Output 1) |
| | | | 63 | Centered (Both Outputs) |
| | | | 127 | 100% Right (Output 2) |
| Tap 2 Delay Time | 29 | 0-127 | Tap 2 time as a percentage of the main delay time | |
| | | | 0 | Min delay (useful for unison/detune/doubling of input) |
| | | | 31-32 | 1/4 of delay time (16th note) |
| | | | 42-43 | 1/3 of delay time (triplet) |
| | | | 63-64 | 1/2 of delay time (8th note) |
| | | | 85 | 2/3 of delay time (swung 8th note) |
| | | | 95-96 | 3/4 of delay time (dotted 8th note) |
| | | | 127 | Same delay time as tap 1 |
| Input Low Pass Filter | 30 | 0-127 | Input low pass filter applied to both wet and dry signals | |
| | | | 0 | No filtering |
| | | | 16 | 15000 Hz |
| | | | 32 | 10000 Hz |
| | | | 48 | 7500 Hz |
| | | | 64 | 5500 Hz (characteristic of vintage Memory Man) |
| | | | 80 | 4000 Hz |
| | | | 96 | 3000 Hz |
| | | | 112 | 2000 Hz |
| | | | 127 | 1500 Hz |

| Parameter | CC# | Range | Value | Description |
|------------------------|-----|-------|---|--|
| Feedback Maximum | 31 | 0-3 | Multiplier to scale maximum feedback amount | |
| | | | 0 | 1.00x (No self-oscillation even at max Feedback) |
| | | | 1 | 1.25x (Self-oscillation may occur) |
| | | | 2 | 1.50x (Self-oscillation may occur) |
| LFO Lock to Delay Time | 32 | 0-1 | Synchronizes LFO (mod, filter, tremolo) to delay time | |
| | | | 0 | LFO will run at its own rate |
| | | | 1 | LFO locks to delay time with optional engine subdivision |
| Invert Left Wet Phase | 33 | 0-1 | Inverts phase of wet (delayed) signal on Output 1 | |
| | | | 0 | Output 1 wet in-phase with dry signal |
| Invert Right Wet Phase | 34 | 0-1 | Inverts phase of wet (delayed) signal on Output 2 | |
| | | | 0 | Output 2 wet in-phase with dry signal |
| I/O Routing Option | 35 | 0-15 | Configures the signal routing of audio inputs and outputs | |
| | | | 0 | Automatically detect based on plug configuration |
| | | | 1 | Mono In - Mono/Stereo Out, Hardware Bypass |
| | | | 2 | Mono In - Mono Out, Output 1 Wet, Output 2 Dry |
| | | | 3 | Mono In - Stereo Out, Soft Bypass |
| | | | 4 | Stereo In - Stereo Out |
| Multi-Feedback Mode | 36 | 0-3 | Allows compound (dual) delays using multiple taps | |
| | | | 0 | Use Effect Default |
| | | | 1 | Tap 1 is the only Feedback Source (Feedback = 1.0) |
| | | | 2 | Tap 2 is the only Feedback Source (Feedback = 1.0) |
| Merge Stereo Outputs | 37 | 0-1 | Mix L and R outputs down to Mono | |
| | | | 0 | Normal Stereo |
| | | | 1 | Merged L+R on both Outputs |
| On/Off Status | 38 | 0-127 | Turns the delay effect on or off | |
| | | | <=63 | Bypasses the delay effect |
| | | | >=64 | Enables the delay effect |
| Octave Shift Control | 50 | 0-125 | Only for Shifter, Reverse, Helix, and Double Helix Engines | |
| | | | 0 | Octave Down |
| | | | 63 | Unison |
| Delay Send Control | 51 | 0-127 | Controls the amount of input signal going to the delay effect | |
| | | | 0 | No input sent to the delay |
| | | | 127 | Full input sent to the delay (normal operation) |

| Parameter | CC# | Range | Value | Description |
|-------------------|------------------------------------|-------|-------|--|
| Pitch Shift Table | 24 | 0-125 | | Sets the musical interval for the shift, with optional reverse |
| | | | 0 | 31 semitones (+2 octaves +perfect 5th) |
| | | | 1 | 30 semitones (+2 octaves +diminished 5th) |
| | | | 2 | 29 semitones (+2 octaves +perfect 4th) |
| | | | 3 | 28 semitones (+2 octaves +major 3rd) |
| | | | 4 | 27 semitones (+2 octaves +minor 3rd) |
| | | | 5 | 26 semitones (+2 octaves +major 2nd) |
| | | | 6 | 25 semitones (+2 octaves +minor 2nd) |
| | | | 7 | 24 semitones (+2 octaves) |
| | | | 8 | 23 semitones (+octave +major 7th) |
| | | | 9 | 22 semitones (+octave +minor 7th) |
| | | | 10 | 21 semitones (+octave +major 6th) |
| | | | 11 | 20 semitones (+octave +augmented 5th) |
| | | | 12 | 19 semitones (+octave +perfect 5th) |
| | | | 13 | 18 semitones (+octave +diminished 5th) |
| | | | 14 | 17 semitones (+octave +perfect 4th) |
| | | | 15 | 16 semitones (+octave +major 3rd) |
| | | | 16 | 15 semitones (+octave +minor 3rd) |
| | | | 17 | 14 semitones (+octave +major 2nd) |
| | | | 18 | 13 semitones (+octave +minor 2nd) |
| | | | 19 | 12 semitones (+octave) |
| | | | 20 | 11 semitones (+major 7th) |
| | | | 21 | 10 semitones (+minor 7th) |
| | | | 22 | 9 semitones (+major 6th) |
| | | | 23 | 8 semitones (+augmented 5th) |
| | | | 24 | 7 semitones (+perfect 5th) |
| | | | 25 | 6 semitones (+diminished 5th) |
| | | | 26 | 5 semitones (+perfect 4th) |
| | | | 27 | 4 semitones (+major 3rd) |
| | | | 28 | 3 semitones (minor 3rd) |
| | | | 29 | 2 semitones (+major 2nd) |
| | | | 30 | 1 semitones (+minor 2nd) |
| | | | 31 | 0 semitones (unison) |
| | | | 32 | -1 semitones (-minor 2nd) |
| | | | 33 | -2 semitones (-major 2nd) |
| | | | 34 | -3 semitones (-minor 3rd) |
| | | | 35 | -4 semitones (-major 3rd) |
| | | | 36 | -5 semitones (-perfect 4th) |
| | | | 37 | -6 semitones (-diminished 5th) |
| | | | 38 | -7 semitones (-perfect 5th) |
| | | | 39 | -8 semitones (-augmented 5th) |
| | | | 40 | -9 semitones (-major 6th) |
| | | | 41 | -10 semitones (-minor 7th) |
| | | | 42 | -11 semitones (-major 7th) |
| | | | 43 | -12 semitones (-octave) |
| 44 | -13 semitones (-octave -minor 2nd) | | | |

| Parameter | CC# | Range | Value | Description |
|-----------|-----|-------|-------|--|
| | | | 45 | -14 semitones (-octave -major 2nd) |
| | | | 46 | -15 semitones (-octave -minor 3rd) |
| | | | 47 | -16 semitones (-octave -major 3rd) |
| | | | 48 | -17 semitones (-octave -perfect 4th) |
| | | | 49 | -18 semitones (-octave -diminished 5th) |
| | | | 50 | -19 semitones (-octave -perfect 5th) |
| | | | 51 | -20 semitones (-octave -augmented 5th) |
| | | | 52 | -21 semitones (-octave -major 6th) |
| | | | 53 | -22 semitones (-octave -minor 7th) |
| | | | 54 | -23 semitones (-octave -major 7th) |
| | | | 55 | -24 semitones (-2 octaves) |
| | | | 56 | -25 semitones (-2 octaves -minor 2nd) |
| | | | 57 | -26 semitones (-2 octaves -major 2nd) |
| | | | 58 | -27 semitones (-2 octaves -minor 3rd) |
| | | | 59 | -28 semitones (-2 octaves -major 3rd) |
| | | | 60 | -29 semitones (-2 octaves -perfect 4th) |
| | | | 61 | -30 semitones (-2 octaves -diminished 5th) |
| | | | 62 | -31 semitones (-2 octaves -perfect 5th) |
| | | | 63 | -31 semitones (Reverse -2 octaves -perfect 5th) |
| | | | 64 | -30 semitones (Reverse -2 octaves -diminished 5th) |
| | | | 65 | -29 semitones (Reverse -2 octaves -perfect 4th) |
| | | | 66 | -28 semitones (Reverse -2 octaves -major 3rd) |
| | | | 67 | -27 semitones (Reverse -2 octaves -minor 3rd) |
| | | | 68 | -26 semitones (Reverse -2 octaves -major 2nd) |
| | | | 69 | -25 semitones (Reverse -2 octaves -minor 2nd) |
| | | | 70 | -24 semitones (Reverse -2 octaves) |
| | | | 71 | -23 semitones (Reverse -octave -major 7th) |
| | | | 72 | -22 semitones (Reverse -octave -minor 7th) |
| | | | 73 | -21 semitones (Reverse -octave -major 6th) |
| | | | 74 | -20 semitones (Reverse -octave -augmented 5th) |
| | | | 75 | -19 semitones (Reverse -octave -perfect 5th) |
| | | | 76 | -18 semitones (Reverse -octave -diminished 5th) |
| | | | 77 | -17 semitones (Reverse -octave -perfect 4th) |
| | | | 78 | -16 semitones (Reverse -octave -major 3rd) |
| | | | 79 | -15 semitones (Reverse -octave -minor 3rd) |
| | | | 80 | -14 semitones (Reverse -octave -major 2nd) |
| | | | 81 | -13 semitones (Reverse -octave -minor 2nd) |
| | | | 82 | -12 semitones (Reverse -octave) |
| | | | 83 | -11 semitones (Reverse -major 7th) |
| | | | 84 | -10 semitones (Reverse -minor 7th) |
| | | | 85 | -9 semitones (Reverse -major 6th) |
| | | | 86 | -8 semitones (Reverse -augmented 5th) |
| | | | 87 | -7 semitones (Reverse -perfect 5th) |
| | | | 88 | -6 semitones (Reverse -diminished 5th) |
| | | | 89 | -5 semitones (Reverse -perfect 4th) |
| | | | 90 | -4 semitones (Reverse -major 3rd) |

| Parameter | CC# | Range | Value | Description |
|-----------|-----|-------|-------|---|
| | | | 91 | -3 semitones (Reverse -minor 3rd) |
| | | | 92 | -2 semitones (Reverse -major 2nd) |
| | | | 93 | -1 semitones (Reverse -minor 2nd) |
| | | | 94 | 0 semitones (Reverse unison) |
| | | | 95 | 1 semitones (Reverse +minor 2nd) |
| | | | 96 | 2 semitones (Reverse +major 2nd) |
| | | | 97 | 3 semitones (Reverse +minor 3rd) |
| | | | 98 | 4 semitones (Reverse +major 3rd) |
| | | | 99 | 5 semitones (Reverse +perfect 4th) |
| | | | 100 | 6 semitones (Reverse +diminished 5th) |
| | | | 101 | 7 semitones (Reverse +perfect 5th) |
| | | | 102 | 8 semitones (Reverse +augmented 5th) |
| | | | 103 | 9 semitones (Reverse +major 6th) |
| | | | 104 | 10 semitones (Reverse +minor 7th) |
| | | | 105 | 11 semitones (Reverse +major 7th) |
| | | | 106 | 12 semitones (Reverse +octave) |
| | | | 107 | 13 semitones (Reverse +octave +minor 2nd) |
| | | | 108 | 14 semitones (Reverse +octave +major 2nd) |
| | | | 109 | 15 semitones (Reverse +octave +minor 3rd) |
| | | | 110 | 16 semitones (Reverse +octave +major 3rd) |
| | | | 111 | 17 semitones (Reverse +octave +perfect 4th) |
| | | | 112 | 18 semitones (Reverse +octave +diminished 5th) |
| | | | 113 | 19 semitones (Reverse +octave +perfect 5th) |
| | | | 114 | 20 semitones (Reverse +octave +augmented 5th) |
| | | | 115 | 21 semitones (Reverse +octave +major 6th) |
| | | | 116 | 22 semitones (Reverse +octave +minor 7th) |
| | | | 117 | 23 semitones (Reverse +octave +major 7th) |
| | | | 118 | 24 semitones (Reverse +2 octaves) |
| | | | 119 | 25 semitones (Reverse +2 octaves +minor 2nd) |
| | | | 120 | 26 semitones (Reverse +2 octaves +major 2nd) |
| | | | 121 | 27 semitones (Reverse +2 octaves +minor 3rd) |
| | | | 122 | 28 semitones (Reverse +2 octaves +major 3rd) |
| | | | 123 | 29 semitones (Reverse +2 octaves +perfect 4th) |
| | | | 124 | 30 semitones (Reverse +2 octaves +diminished 5th) |
| | | | 125 | 31 semitones (Reverse +2 octaves +perfect 5th) |
| | | | 126 | Reserved |
| | | | 127 | Reserved |